

1 **Specification**

2 **METHOD AND APPARATUS FOR DELIVERING SOFTWARE APPLICATIONS AS**
3 **SERVICES OVER THE INTERNET USING A TRANSACTION-BASED**
4 **UTILITY MODEL**

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6 The present application claims priority from United States Provisional Patent Application
7 Serial Number 60/200,966 filed May 1, 2000.

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9 **Background of the Invention**

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11 **Field of the Invention**

12 The present invention relates generally to methods and apparatus for the sale of products
13 over the Internet, and more particularly to a method of providing software applications as
14 services over the Internet using a transaction based utility model.

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16 **Description of the Prior Art**

17 Traditionally, the Internet has been used for the sale of products in a similar manner to a
18 mail order catalog. Items and prices are reviewed and orders for goods are placed, which are
19 then shipped to the consumer's address. Certain types of information can also be purchased over
20 the Internet, such as a copy of a United States Patent, which can be downloaded and a hard copy
21 printed on a consumer's printer. Other information services include stock market data and news
22 event information, etc. Modern businesses also have a need for software in various areas of
23 technology, such as accounting, business management, and product design. The purchase and
24 maintenance of these programs can be a major expense, especially for smaller businesses where
25 usage is infrequent, but mandatory. In some cases, this situation requires costly subcontracting
26 due to the lack of even more costly computational/analytical facility. The current method of
27 software acquisition through the Internet is generally similar to other products, wherein the
28 desired product is selected and then delivered through physical media such as a CD-ROM, or
29 alternatively through a download over the Internet. In addition to the high cost of purchase of
30 many specialty software programs, additional costs are incurred in maintenance and upgrading
31 the software.

1 **SUMMARY**

2 It is therefore an object of the present invention to provide a method that gives a
3 consumer access to sophisticated applications software at a lower cost.

4 It is a further object of the present invention to provide a consumer access to applications
5 software through the Internet at a cost on a usage basis.

6 It is a still further object of the present invention to provide software applications as
7 transaction-based utility services over the Internet utilizing a multi-tiered software architecture.

8 It is another object of the present invention to provide software applications over the
9 Internet with a multi-tiered architecture that partitions software functions into "presentation,"
10 "business functions" and "data components."

11 It is an object of the present invention to provide software to a user that is upgraded
12 without intervention by the user.

13 Briefly, the present invention provides a method and system for the sale of software
14 applications services through the Internet. A user accesses the Internet from a client machine
15 that secures connection to a web top server, including a software service web site. The web top
16 server provides the user with the required interface components. A database server contains user
17 related persistent data and performs software service computation on the data as instructed by an
18 applications server, including processing user input data and providing corresponding result data.
19 The applications server processes communication between the web top server and the database
20 server, performs the required software service computations, including processing user input data
21 and providing corresponding result data, and contains the functionality required for recording
22 user transaction and billing operations.

23

24 **In the Drawing**

25 Fig. 1 is a flow chart of a preferred method of the present invention; and

26 Fig. 2 is a block diagram of a system of the present invention.

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28 **Detailed Description of the Preferred Embodiment**

29 A preferred embodiment of the method and system of the present invention is illustrated
30 in the flow chart of Fig. 1 of the drawing. According to the method, an authorized user can
31 obtain access to a system computer and database containing a desired software program and

1 computational functionality. The system computer facility retains the applications software,
2 performs the requested computations and prepares corresponding result data to be sent to a client
3 terminal through the Internet, all in response to a client/user's request. The client's usage is
4 charged to the client on a pre-arranged basis, which can be by transaction or by time. The billing
5 rate may depend on various factors including the specific program selected, the computational
6 facility required, and the amount of storage used.

7 The method of charging for software usage according to the present invention departs
8 from the conventional prior art method of purchasing software that is installed on a user's
9 computer and paying for maintenance. The method of the present invention has the advantage of
10 allowing businesses access to a software applications service through the Internet, wherein
11 selected software and computational facility is purchased on a usage basis, at what can often be a
12 lower cost for a project than would be the case if the software had to be purchased and installed
13 on a client/user's machine. Another advantage of the present system is that upgrades are made
14 as required, and are immediately available to the user without any intervention by the user.

15 According to Fig. 1, a potential user establishes an account (10) with the software
16 applications service company. This can be done through accessing the service company/system
17 web site (12), or alternatively by any of various other methods that will be apparent to those
18 skilled in the art. Upon access to the system site, a method of security is provided, which is
19 indicated as a password, but can take other forms as will be understood by those skilled in the
20 art. As indicated above, either a new or established user can access the system network site (12).
21 The site can optionally supply system advertising, and as indicated above, can also provide the
22 required forms for establishing an account. Generally, an established user will enter some
23 required form of identification/authorization. If the user indicates that he/she does not have an
24 account, or if an entered authentication does not match a corresponding authentication stored in
25 the system, the user is referred to establish an account or enter the required
26 authentication/password (block 10). Fig. 1 indicates the referral with path (16) and notice (17),
27 informing the user of what is required, etc. In this way, an account can be established through
28 access to the system site, as well as by other methods of communication with the software rental
29 system. If the person has an account (18) and successfully logs in, the system will present the
30 user with available selections, and/or allow the user to enter his/her choice of desired software
31 application (20). The system then checks to be sure that the user is authorized to access the

1 selected software, and alternatively to additionally check that the account is currently active and
2 in good standing (22). If it is not (24), a notice is given (26). If access is approved (28), the
3 system connects the user's terminal with a system applications server through a web top server
4 that provides the required user interface 30. The user can then proceed to operate the software
5 program as if it were located on the user's computer. The computations and data storage,
6 however, are all done on the system application server and/or database server in response to user
7 instructions and/or data input. In this way, the user avoids the cost of purchasing/downloading
8 the software to his/her computer, and the cost of maintenance. The operation of the software as
9 described above is also indicated/implied by block 30. The additional benefit of software
10 maintenance and/or upgrades is indicated by block 32. A record is kept by the application server
11 of client/user operation (36), and the client/user is billed for the usage 38.

12 A preferred system hardware arrangement 40 for implementation of the method and
13 system of the present invention is illustrated in Fig. 2. A service provider network 42 is
14 generally included for providing any number of client machines/terminals 44 access to the
15 Internet 46. A preferred embodiment of the present invention includes a web top server 48 that
16 is accessed initially by a client browser on each client machine 44. This access can be facilitated
17 directly 50 through network 42, or by accessing 52 the Internet 46 and then 54 to the server 48.
18 The system 40 includes the web top server 48, an application server 56, a data access server 58
19 and a database server 60. The web top server 48 provides the required interface to the client
20 machines 44. For example, the web top server can serve HTML pages containing applets,
21 providing the user interfaces for a particular software application requested by the user. The
22 order of operational events up to this point of the description includes the user operating a client
23 machine 44 to access the web top server. The web top server provides the user with selections,
24 and upon activation by the user, the web top server makes a required contact with the application
25 server 56. The application server 56 processes calls from the web top server 48 to the database
26 60 via the data access server 58. The application server reads and writes from and to the
27 database 60 via the data access server 58. Data is returned to the web top server, for example via
28 a Java Servlet.

29 The application server manages the reception, retention, and maintenance of client
30 account information/data, including client identification, security measures such as a password,
31 and an accounting/record of a consumer's usage, and billing data and procedures. When a user

1 logs onto the system, the application server may check the specific user's account balance and
2 make a determination to allow or disallow the user's access to a specific software application.

3 The database server 60 contains the application related persistent data, and runs on all
4 SQL compliant relational databases, e.g., IBM DB2, Sybase, Informix and MS SQL. The
5 application and database servers receive the necessary input data from a user for running a
6 selected program. The servers then respond to the user's direction and proceed to perform the
7 operations of the selected program and provide the results. User input data and program results
8 are communicated from and to the user through the web top server from and to the client
9 terminal. Only the results and input data are handled and potentially stored on the client
10 machine.

11 Although the present invention has been described above in terms of a specific
12 embodiment, it is anticipated that alterations and modifications thereof will no doubt become
13 apparent to those skilled in the art. For example, specific server functions have been separately
14 defined for servers 48, 56, 58 and 60. The present invention also includes these functions in any
15 of various combinations of servers, such as the functions of servers 56, 58 and 60 all in one
16 physically located server, etc. It is therefor intended that the following claims be interpreted as
17 covering all such alterations and modifications as fall within the true spirit and scope of the
18 invention.

19 What is claimed is: